

WHAT IS CLAIMED IS:

1. A method of surface crosslinking a superabsorbent polymer comprising the steps of:

(a) providing superabsorbent polymer particles;

(b) forming a surface-crosslinker composition comprising a surface crosslinking agent, water, and 20 to 35 wt% of 1,3-propanediol as a cosolvent;

(c) applying the solution of (b) to the surfaces of (a) to provide surface-treated superabsorbent polymer particles; and

(d) heating the surface-treated superabsorbent polymer particles at 25°C to 150°C for 15 to 180 minutes to form surface crosslinks in the vicinity of the surface of the surface-treated superabsorbent polymer particles,

wherein the amount of surface-crosslinking agent in (b) is at least 5 wt% less than the identical surface-crosslinking agent used when propylene glycol is a cosolvent to achieve a predetermined degree of surface crosslinking.

2. The method of claim 1 wherein step (c) is performed prior to step (d).

3. The method of claim 1 wherein steps (c) and (d) are performed simultaneously.

4. The method of one of the claims 1 to 3 wherein the amount of surface-crosslinking agent in (b) is at least 10 wt% less than the identical surface-crosslinking agent when propylene glycol is used as a cosolvent to achieve a predetermined degree of surface crosslinking.

5. The method of one of the claims 1 to 4 wherein the amount of surface-crosslinking agent in (b) is 5 wt% to 25 wt% less than the identical surface-crosslinking agent when propylene glycol is used as a cosolvent to achieve a predetermined degree of surface crosslinking.

6. The method of one of the claims 1 to 5 wherein the surface-crosslinking solution comprises 25 to 30 wt% of the 1,3-propinediol.

7. The method of one of the claims 1 to 6 wherein the surface-crosslinking solution is free of propylene glycol.

8. The method of one of the claims 1 to 7 wherein the surface-crosslinker solution consists essentially of the surface-crosslinking agent, water, and 1,3-propanediol.

9. The method of one of the claims 1 to 8 wherein the surface crosslinks are formed by essentially only the surface-crosslinking agent.

10. The method of one of the claims 1 to 9 wherein the surface-crosslinking agent comprises a divalent metal, a trivalent metal, a diglycidyl ether, a diamine, a halohydrin, a polyfunctional aziridine compound, a dialdehyde, a disulfonate ester, a diester, an organic titanate, a melamine resin, a hydroxymethyl urea, a hydroxyalkylamide, and mixtures thereof.

11. The method of one of the claims 1 to 10 wherein the superabsorbent polymer comprises a neutralized lightly crosslinked acrylic-type resin containing at least 10% acidic monomer units selected from the group consisting of a carboxylate, sulfonate, sulfate, and phosphate group.

12. The method of one of the claims 1 to 11 wherein the superabsorbent polymer comprises polyacrylic acid neutralized 50 to 100 mole percent.

13. The method of claim 12 wherein the surface-crosslinking agent comprises ethylene glycol diglycidyl ether.

14. Surface-crosslinked superabsorbent polymers prepared by the method of one of the claims 1 to 13.